```
exponentiation_wf_nat_plus  THM

⊢  ∀n:ℕ⁺, k:ℕ. (n^k) ∈ ℕ⁺  by Analyze
|
1. n : ℕ⁺
⊢  ∀k:ℕ. (n^k) ∈ ℕ⁺  by CompNatInd Concl
|
2. k : ℕ
3. ∀k1:ℕ. k1<k ⇒ (n^k1) ∈ ℕ⁺
⊢  (n^k) ∈ ℕ⁺
| by Compute ⌈n^k⌉ *⇒ if k=₂0→ 1 else n•(n^(k-1)) fi
|    THEN
|    SplitOnConclITE
|
.....falsecase .....
4. ¬k = 0
⊢  n•(n^(k-1)) ∈ ℕ⁺  by Decide: n = 0
|
|\
| 5. n = 0
| ⊢  n•(n^(k-1)) ∈ ℕ⁺  by Analyze
|
.\
. 5. ¬n = 0
. ⊢  n•(n^(k-1)) ∈ ℕ⁺  by BackThru: ∀x:ℕ⁺. n•x ∈ ℕ⁺
. |
. |\
. | .....assertion .....
. | ⊢  ∀x:ℕ⁺. n•x ∈ ℕ⁺  by Auto
. | |
. | 6. x : ℕ⁺
. | ⊢  n•x ∈ ℕ⁺  by Analyze
. | |
. | .....set predicate .....
. | ⊢  0<n•x  by BackThru: Thm*  ∀a,b:ℕ⁺. 0<a•b    {mul_bounds_1b}
. |
. .\
. . .....wf .....
. . ⊢  (n^(k-1)) ∈ ℕ⁺  by BackThru: Hyp:3
END
```